Catch ‘em Before They Hit the Ground

A Case Study in Classroom Intervention

Chris Shore
Great Oak High School

How to Catch Struggling Students Before They Hit the Ground

❖Get DEMANDING: Demand Best Effort

Theory	Practice
No Options!	**Slacker Alerts**
(Make failure more painful than success)	**Incomplete Policy**
	Intervention
	S.O.S.
Engage!	**No Quiet Deals**
	Walk the Room

❖Get FOCUSED: Remediate Immediate-ly

Theory	Practice
Frequent & Formative	**S.O.W.**
Assessment of Clear Targets	**Cumulative Tests**
	Skill Battery
Descriptive Feedback	**Answer Keys**

❖Get DETERMINED: Dial it UP not Down

Theory	Practice
"Slow Bird gets up early"	**Differentiated SB**
Much run faster to catch up	**Lunch Bunch for F's**

❖Get EXCITED: Motivate

Theory	Practice
Recognition	**Gnarly Stars**
Hope	**Progressive Testing**
It's the END that matters	**Best Deal on Campus**

Why Do the Succeed or Fail?

Student Arch Types

F C B A

Cousin It

Answer Key

C. Shore, Mathematics Great Oak High School

WARNING:
SLACKER ALERT

Your child _____ has been slacking off in class this week as evidenced by:

☐ A lack of participation in class.

☐ Failure to complete homework one or more times.

☐ Missing one or more major assignments:

Please sign and return by Monday. If you have any questions, feel free to call me at 295-6450 x 3704, and leave a message as to the best time and place to reach you. Thank you for your support in the education of your child.

Student Signature _____ Parent/Guardian _____

C. Shore, Mathematics Great Oak High School

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Student Signature _____ Parent/Guardian _____

Geometry, Great Oak HS Name _____

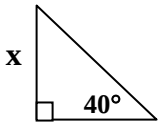
Skill of the week

Trigonometry

1

Solve for x

1)



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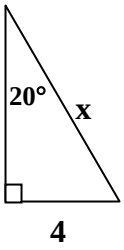

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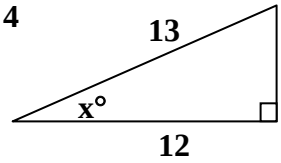
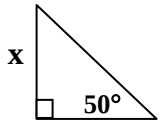


2

Solve for x

1)



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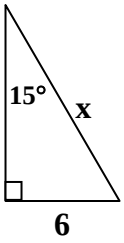

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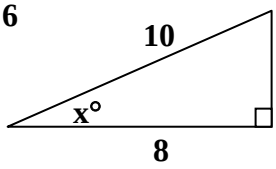
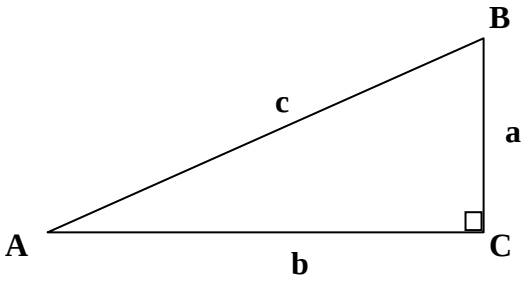


B) Given: ΔABC

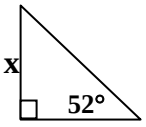
Prove: $\tan A = \dfrac{\sin A}{\cos A}$



3

A) Solve for x

1)



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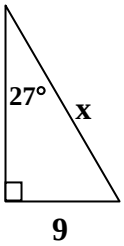

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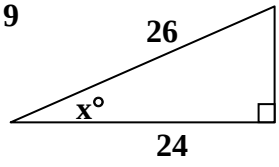
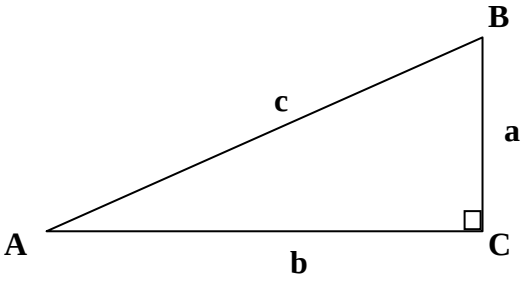


B) Given: ΔABC

Prove: $\sin^2 A + \cos^2 A = 1$



Algebraic Manipulations

Solving Equations

1) Solve & Check

a) $3x - 4 = -16$ b) $\frac{5}{4}x + 2 = 32$ c) $8 - x = 12$ ♦) $\frac{x}{3} - \frac{1}{4} = 5$

2) Solve & Check

a) $3x + 10 + 7x = 20$ b) $9(t - 3) = -3(2t + 4)$ c) $\frac{3}{4} = \frac{9}{x+2}$ ♦) $\frac{12}{w} = -3$

Evaluating Expressions

3) Evaluate

a) for x = 2: $8 - 3x$ b) for w = 4: $5 - 2(x + 1)$ ♦) for y = $-\frac{2}{3}$: $\frac{\mathbf{6}}{\mathbf{10}}\boldsymbol{x} - \frac{\mathbf{1}}{\mathbf{4}}$

Rules of Exponents

4) Simplify

a) $x^3 \bullet x^5$ b) $\left(x^4\right)^2$ c) $(ab)^6$ d) $\left(\frac{x}{y}\right)^3$

Adding/Subtracting Polynomials

5) Add

a) $x + x$ b) $x^2 + x^2$ c) $-(a + b)$ d) $7 - 3(x + 2)$ ♦) $8x + 13y - 5x$

Multiplying Polynomials

6) Multiply

a) $3a(a + 4)$ b) $3x(2x^2 - 7x)$ c) $x^2(x + y)$

7) Multiply

a) $(a + 4)(a + 5)$ b) $(x - 3)(x - 5)$ c) $(4x + 1)(2x - 8)$ d) $(4x + 3)^2$

Factoring

8) Factor

a) $3a^2 + 12$ b) $a^2 + 7a + 12$ c) $x^2 - 3x - 10$

9) Factor

a) $2x^2 + 11x + 12$ b) $x^2 - 25$ c) $3x^3 + 12x^2 - 15x$

Solving Quadratics by the Quadratic Formula

10) Solve

a) $0 = x^2 + 6x$ b) $0 = x^2 + 10x - 8$ c) $10 = x^2 + 10x - 6$ ♦) $12 = x^2 + 7x$

Simplifying Radicals

8) Simplify

a) $\sqrt{\mathbf{20}}$ b) $\mathbf{2\sqrt{3} \bullet \sqrt{4}}$ c) $\mathbf{3\sqrt{2} - \sqrt{8}}$ d) $\mathbf{2\sqrt{3} + \sqrt{5}}$ ♦) $\frac{10}{\sqrt{5}}$

Coordinate Geometry

Writing Equations

1) Write the equation of the line through the given pair of points

a) (4, 11) & (7, 17) b) (-2, -1) & (6, 3) ♦) (–2, 9) & (6, –5)

Graphing Equations

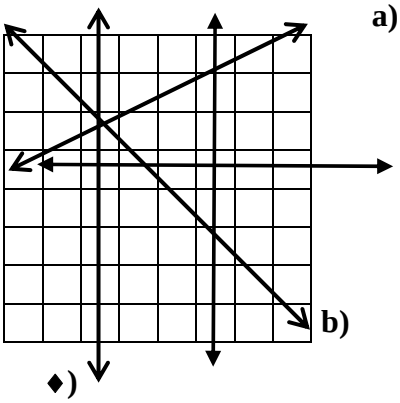
2) Graph the following equations.

a) y = 3x – 2 b) $y = -\frac{7}{4}x + \frac{11}{2}$ c) y = x d) y = 3 ♦) x = -2

3) Graph the following equations.

a) 3x + 4y = 12 b) 2x – 3y = 15 ♦) x – 2y = 10

4) Write the equation of the line shown:



Parallel & Perpendicular

5) Write the equation of the that is:

a) Parallel to line *a* through (4, 2)

b) Perpendicular to line *a* through (1, 2)

Solving Systems by Substitution

6) Solve

a) $\begin{cases} y = 3x - 6 \\ y = -2x - 1 \end{cases}$ b) $\begin{cases} y = x + 6 \\ y = -x + 4 \end{cases}$ c) $\begin{cases} y = 5x + 2 \\ 3x + y = 10 \end{cases}$ d) $\begin{cases} y = -x + 3 \\ 4x - 2y = 18 \end{cases}$

Solving Systems by Elimination

7) Solve

a) $\begin{cases} x + y = 11 \\ x - y = -1 \end{cases}$ b) $\begin{cases} 2x + 3y = 11 \\ x + 3y = 7 \end{cases}$ c) $\begin{cases} 3x + 2y = 1 \\ x - y = 2 \end{cases}$ ♦) $\begin{cases} 3x + 4y = 13 \\ 2x + 5y = 11 \end{cases}$

Midpoint

8) Find the midpoint of the given points

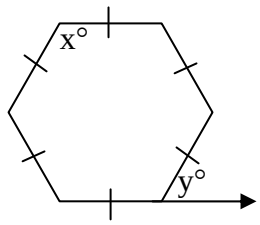
a) (1, 5) & (4, 9) b) (4, 11) & (7, 17) c) (-2, -1) & (6, 3) ♦) (–2, 9) & (6, –5)

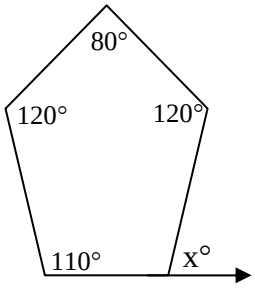
Distance

9) Find the distance between the given points.

a) (1, 5) & (4, 9) b) (4, 11) & (7, 17) c) (-2, -1) & (6, 3) ♦) (–2, 9) & (6, –5)

18. For the polygons below, solve for the indicated variable(s).

a) 

b) 

19. Determine the number of sides for the polygon described.

a) The sum of the interior angle measures equals that of the sum of the exterior angles.

b) The sum of the interior angle measures equals that of twice the sum of the exterior angles.

Identify and draw an example of a quadrilateral that possesses the following properties for its diagonals. (You offer more than one.)

20. a) bisect each other congruent

Identify: _____

Draw:

b) bisect and are also perpendicular and

Identify: _____

Draw:

21. a) are perpendicular

Identify: _____

Draw:

b) are congruent but do not bisect each other

Identify: _____

Draw: